

MOBILITY ENHANCED CMOS DEVICES

Abstract

Compressive or tensile materials are selectively introduced beneath and in alignment with spacer areas and adjacent to channel areas of a semiconductor substrate to enhance or degrade electron and hole mobility in CMOS circuits. A process entails steps of creating dummy spacers, forming a dielectric mandrel (i.e., mask), removing the dummy spacers, etching recesses into the underlying semiconductor substrate, introducing a compressive or tensile material into a portion of each recess, and filling the remainder of each recess with substrate material.